

SEED LAYER FORMATION

Abstract of the Disclosure

The present invention produces a seed layer for the deposition of copper for metallizing integrated circuits. A diffusion barrier is deposited upon the wafer. In one embodiment of the invention, a metal oxide layer is then formed on the diffusion barrier. The oxidized metal is then reduced to a conductive lower oxidation state or to its elemental form. That metal is then used as the seed layer for the growth of copper. In another embodiment, the surface of the barrier layer is repeatedly oxidized and reduced in order to reduce incubation time for the growth of a seed layer. A ruthenium seed layer is then deposited over the treated barrier layer.

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